CARLETON
UNIVERSITY

President's Report 1997

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Education for Life

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President's Message

In my first General Faculty Board Address, when I returned to the University as its President in August, 1996, I spoke about how much Carleton had changed since my days here as an undergraduate in the 1960s. Now that the first year of my term as President is over, I can safely say that Carleton has shown once again that its capacity to change in dynamic and exciting ways is truly one of its strengths. For all of us at the University, it has definitely been a year of "new directions."

We want you to know more about Carleton, the recent changes we have made, some of our current activities, and, of course, a little about the many accomplishments of our faculty and students. Given the crucial role of higher education and advanced training in today's complex economy, I believe it is important for everyone to be aware of what actions universities are taking to contribute to society in a meaningful, relevant way, especially when perceptions about our role are changing. The post-secondary system is facing many challenges, and Carleton University is responding to these challenges with innovation and action.

In the past 12 months, we have reorganized our academic structure to more clearly focus the University's academic directions and growing interdisciplinarity. We have also implemented the recommendations of an extensive administrative review to ensure that the necessary support is in place for our academic goals. We have conducted a rigorous review and evaluation of our programs, and implemented the changes that were necessary to ensure the highest standards. We are also revitalizing our B.A. programs, adding required courses that will ensure students attain and master the basic academic skills required to succeed, while offering more opportunities for them to "customize" their degrees to meet their personal goals. We have made a commitment to integrating new technologies into both teaching and learning — not only exploring new methods of delivering education, but exposing our students to the most current and relevant technologies as they learn.

While these are major changes, it is the fact that we have decided to make this an ongoing process of review and change that is most important.

As you read through this report, you will see many examples of the creativity, academic rigour, and pursuit of excellence that mark our commitment to maintaining the highest standards in what we do. Carleton has a major contribution to make to Canada's growth and future, whether it is through the excellent education we provide, our qualified graduates in a wide range of fields or the important and often unique research that is pursued here.

I hope that you will enjoy finding out about Carleton University, and take this as my personal invitation to learn more about us.

Richard J. Van Loon

President and Vice-Chancellor

Carleton University has responded to changing times and the demands of today's workforce by renewing its academic focus in the fields of high technology, and public affairs and management.

While continuing to offer strong programs in social sciences, science, and arts, Carleton has decided to reinforce its commitment to areas such as public administration, computer systems engineering, aerospace engineering, journalism, telecommunications, business, and computer science. Carleton is one of the first universities in the country to institute an ongoing program review to ensure that it will continue to adapt and change to meet future challenges and future goals.

Meet Our New Management Team

New directions require new leadership. In the last year, a new management team has been put into place. They are, *from left to right:*

Susan Gottheil,
Assistant Vice-President/Enrolment Management, Effective July 1, 1997;

John ApSimon,
Vice-President/Research and External, Effective May 1, 1997;

Stuart Adam,
Vice-President/Academic, Effective May 1,1997;

Duncan Watt,
Vice-President/Finance and Administration, Effective July 1, 1997

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The University has also appointed a fresh slate of deans to head Carleton's newly created faculties. On July 1, 1997, three new deans were named. They are:

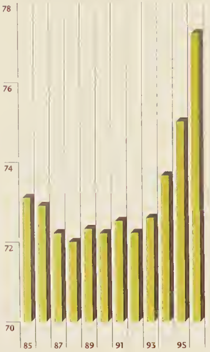
Roger Blockley,
Dean of the Faculty of Graduate Studies;

William Jones,
Dean of the Faculty of Arts and Social Sciences;

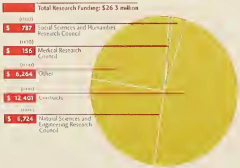
Allan Maslove,
Dean of the Faculty of Public Affairs and Management.

Peter Watson was appointed *Dean of the Faculty of Science* in September, 1996, and **Malcolm Bibby**, *Dean of the Faculty of Engineering* since 1990, continues in that role.

First-Year Admission Average



Research funding



Admission Averages Going Up

Carleton's admission averages are steadily increasing. In three years, the mean admission average of first-year students entering Carleton University directly from high school has increased by five percent. Last year, mean admission averages ranged from 73.1 percent for the B.A. program to a high of 87.8 percent for the new Bachelor of Humanities program. Entrance averages were 79.5 percent for Science, 81.5 percent for Engineering, and 84 percent for both Journalism and International Business.

Scholarship Program Enhanced

The University has added $600,000 to its generous student awards program and now offers $2.1 million in scholarships and bursaries to recognize academic excellence. Last year, 2,347 students received awards.

Research Funding Doubles

Carleton University is a research intensive institution. In six years, Carleton's total research funding has doubled and now represents more than $26 million. In 1996/97 alone, total funding in grants and contracts increased by close to $6 million over the previous year.

Publications

When it comes to publishing, Carleton University faculty are prolific. In 1996/97, faculty produced a total of 138 books, 1,817 published articles in journals, and wrote seven original musical compositions.

Students Successful in Competing for External Awards

In competing for external funding and awards, Carleton students have one of the highest success rates in Ontario.

- In 1997, Carleton doctoral candidates were second in Ontario and all of Canada in their success rate in competing for funding from the Social Sciences and Humanities Research Council of Canada. These awards, worth over $14,000 annually for four years, are awarded to about one in six applicants from across the country.
- Carleton undergraduates had a higher success rate than those from institutions such as Queen's, Toronto, Western, and McMaster in the competition for Ontario Graduate Scholarships, valued at almost $12,000, and awarded to students with a minimum A- average who will be pursuing full-time graduate studies at an Ontario university.

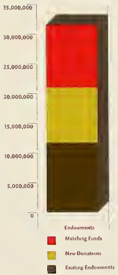
Carleton's Capital Campaign

Carleton has a strategy for academic renewal and a commitment to change. The University also has an ambitious fund-raising campaign aimed at helping Carleton build on its strengths in teaching and research and position itself for the next century.

These strengths form the building blocks of the campaign and include:

- Engineering, science and technology — revitalizing and introducing communications technologies to make optimum use of learning and research opportunities;
- Public affairs, management and internationalization — building on our strengths to fund academic chairs, new research initiatives, and centres of excellence;
- Student support and learning enhancement — providing opportunities for the advancement of knowledge through bursaries and scholarships;
- Culture and communications — expanding our horizons and deepening our understanding of the changing world in which we live.

Endowment Funds



Students 96/97

12,151	*Full-time undergraduate*
3,704	*Part-time undergraduate*
15,855	*Total undergraduate*
1,592	*Full-time graduate*
759	*Part-time graduate*
2,351	*Total graduate*
13,743	*Total full-time*
4,463	*Total part-time*
18,206	Total

Staff 96/97

684	*Academic staff*
361	*Sessional lecturers*
932	*Teaching assistants*
852	*Management and support staff*
2,852	Total

Million Dollar Commitment to Capital Campaign

The Carleton University community has backed the Capital Campaign in a big way — putting more than $1,000,000 into projects they feel are important to Carleton's future — a dramatic demonstration of the commitment of faculty, staff, and Board of Governors to the University.

Endowment Funds Grow

Carleton supporters took full advantage of a limited-time opportunity to double the value of their donations for student aid at the University. The result was that, in just a few months, Carleton's bursary endowment fund grew from $11.4 million to $30 million and hundreds of Carleton students who may not have had the opportunity to pursue or continue their studies will now be able to do so.

The appeal for student aid was launched to take advantage of the Ontario Student Opportunity Trust Fund (OSOTF), a program aimed at increasing student aid funds at universities across the province. The provincial government matched donations dollar for dollar.

A total of $10 million ($20 million when matched) was raised at Carleton over the seven-month life of the OSOTF program which ended March 31, 1997.

Alumni Show Strong Support

A university is only as successful as its graduates, and at Carleton, alumni show their appreciation and support in a big way. According to *Maclean's* magazine, Carleton alumni were tops in the country, in the comprehensive university category, for participating in their alma mater's fund-raising campaign in 1995 and 1996.

Staff Work to Revitalize Support Services

Staff at Carleton have been working to find ways to improve service to students, increase administrative efficiency, and cut costs.

A series of process redesign teams comprised of staff from across the University, have examined administrative processes such as payroll, purchasing, student records, student transactions, and communications with students. Their recommendations have been approved by senior management and are currently being implemented. Another team, the Working Group on Administrative Renewal, made far-reaching recommendations to ensure that administrative structures at the University support the academic mission. The recommendations are designed to improve student services through the creation of the positions of Dean of Students and Assistant Vice-President (Enrolment Management), and to create a simpler, more focused structure through the consolidation of portfolios and the elimination of several assistant and associate vice-presidential positions.

Through the development of partnerships with government, industry, and other educational institutions, Carleton University is constantly improving and expanding the quality of our students' educational experience.

"We believe in innovation when it comes to teaching," says Vice-President (Academic) Stuart Adam. "Whether it's through new applications of technology such as the Internet, providing our students with access to the latest software in their field or welcoming new partners to the learning process, Carleton will continue to explore every avenue that leads to an enrichment of the educational opportunities that we offer our students."

Peter **Emberley**

Carleton's College of the Humanities is a Hit

After only its first year, Carleton's College of the Humanities is doubling its enrolment to meet demand. At a time when high technology is all the rage, the resounding success of the College proves that students and employers also value a demanding liberal arts education that equips graduates with the judgment, critical reasoning capacity, and cultivated imagination necessary to succeed in whatever field they choose to pursue.

In addition to specially designed humanities courses, students in the College take a variety of approved options from Carleton's Faculty of Arts and Social Sciences, including classics, religion, languages, history, and philosophy. They also enjoy a faculty mentorship program, special seminars, and an internship program.

"This program stands or falls on its academic integrity," says Peter Emberley, Director of the College. "A great deal of time was put into creating a curriculum in which each component 'resonates' with the others, creating an overall program that is very demanding, but immensely enriching. This type of approach also builds on Carleton's move towards a more interdisciplinary approach to education."

A wide range of businesses, industry, and government have shown interest in the College. It has received $700,000 in outside funding and over 150 offers of internship placements.

The Future is Going Global

In 1998, Carleton's School of Business will see the first graduating students from its new four-year undergraduate degree program, the Bachelor of International Business (BIB).

"It is the only program we know of in North America that offers an integrated cross-cultural international business experience," says Professor Nicolas Papadopoulos who helped introduce the program.

The program brings together the study of foreign language, a compulsory year of study abroad in its third year, integrative international courses such as cross-cultural communications, and fundamental business courses.

Spanish, Japanese, German, French, Italian, and Russian are offered, says Lorna Unger, Exchange Co-ordinator for the School. The nine students who returned this year from "a linguistic and cultural immersion" in Mexico, Spain, France, and Austria "have experienced a huge leap in maturity," says Unger.

The BIB, says Papadopoulos, offers students an opportunity to succeed in careers in business. "Many jobs today, and life in general, require a good understanding of what's going on in the world. And we believe you must have an integrated experience to do it."

Students Have Access to the Latest Technology

The generosity of corporations has given Carleton students access to some of industry's most up-to-date software technology.

In the Department of Earth Sciences, a software donation from Calgary-based International Datashare Corporation worth $2.5 million, gives students working with Professor Claudia Schröder-Adams access to a large amount of geological information on oil and gas exploration, and several sophisticated software programs to manipulate and interpret the data.

"Most small and medium-sized companies in the industry don't have this kind of database," says Schröder-Adams.

Thanks to software by Enterprise Planning Systems, a Kanata-based company, students in the Department of Mechanical and Aerospace Engineering are learning on software that many international manufacturing giants use to manage their production. Advanced Planning and Scheduling (APS), a UNIX-based software, has become an industry standard in the planning and scheduling of manufacturing processes. Mechanical engineering professor Moyra McDill will be using the $350,000 program with her senior students. "APS gives us a wonderful tool for simulating different manufacturing processes," says McDill.

Co-op Opportunities Expand

There are an increasing number of opportunities for Carleton students to gain work experience. In 1997, three new co-op programs were introduced in electrical and computer systems engineering, in earth sciences, and in physics, in addition to existing co-ops in business, public administration, and computer science. Students also have access to the Industrial Experience Program in aerospace, civil, environmental, and mechanical engineering, as well as internships in industrial design and political science. Work practicums are also available in a dozen disciplines.

David Coll

Responding to Canada's Need for Highly Skilled Workers

Carleton is responding to the growing shortage of highly skilled workers by increasing its emphasis on technology programs that support our regional industries.

Telecommunications Technology Management

A Canadian first, Carleton's Master of Engineering in Telecommunications Technology Management combines computer and communications engineering with studies in high level management.

Designed for engineers (or equivalent) with two years of postgraduate experience in industry, the program is specifically directed at the management of the communications engineering industry with a focus on technology management.

"This program," says systems engineering professor and program director David Coll, "is providing the future leaders of the telecommunications industry."

O-VITESSE

Carleton has joined forces with the University of Ottawa, Mitel Corporation, and the National Research Council of Canada to form the Ottawa-Carleton Venture in Training Engineers and Scientists in Software Engineering (O-VITESSE).

Begun as a pilot project in January, 1997, the program provides recent graduates of science and engineering programs with the opportunity to earn a certificate in software engineering in as little as 16 months. The high technology sector is watching this project with keen interest.

ConGESE

Carleton has joined industry giants Nortel and IBM Canada, along with five other Ontario universities, in the Consortium for Graduate Education in Software Engineering (ConGESE). ConGESE is a province-wide response to serious concerns over the shortage of qualified workers at senior levels in the software industry.

Expanding as Fast as We Can

To meet the changing demand, Carleton University has increased the first-year intake of students in computer science by 50 percent and computer systems engineering by even more, while raising the cut-off levels too. Carleton is already the largest supplier of graduates to Nortel, Canada's largest high tech company.

IS Program

Carleton's relationship with the high tech sector is not limited to its successful engineering and computer science programs. Last year, the School of Business launched its new Information Systems (IS) concentration to rave reviews from students and employers.

IS combines the technical know-how of computer science with a solid foundation in business. Students take courses in programming and database building as well as management courses that deal specifically with the IS sector of the economy. To ensure that the curriculum is relevant and up-to-date, the School of Business has invited a number of industrial partners to serve on an advisory board which keeps Carleton abreast of changes and demands in the field of IS.

Students Making a Difference

Carleton University students are not only among the tops in the country for achieving scholarly awards, they are also innovative and proactive outside the classroom.

Whether designing components that will travel into space, competing in the software industry or providing educational opportunities for children from other continents, they are learning that the world is their classroom and that they can make real contributions to society. This approach to learning enhances the quality of their education and provides us with a hint of the possibilities to come.

Double the Achievement — Two Carleton WES Candidates Earn National Recognition in Engineering and Science

Despite great changes in attitudes in the business and technology sectors, women continue to be underrepresented in today's science and engineering communities. In an effort to encourage more women to pursue careers in mathematics, science, and engineering, the National Research Council offers its Women in Engineering and Science (WES) Program. The program provides female students in these disciplines with an opportunity to choose a specific area of study and work under the tutelage of the best and brightest in the field.

While several Carleton students have been recognized by this program, this year Carleton was one of only four universities in the country in which both nominated candidates were selected to receive the four combined scholarship-work programs valued at approximately $40,000.

Carleton recipients are Shauna Rauhala, a first-year aerospace student and the second-ranked woman in both aerospace and engineering. Rauhala is also a performance level pianist and a regular volunteer with the Multiple Sclerosis Society. She is joined by Charlene Mathias, a first-year computer systems student who was ranked first in computer systems engineering and third in the overall program. Mathias is quintilingual and actively involved in the Engineering Society. Both women are in the top two percent of their first-year class.

Previous WES Winner Continues to Excel

After transferring from arts to Carleton's aerospace engineering program two years ago, Katherine Furlong was one of only 25 students in Canada to win a three-year National Research Council of Canada Women in Engineering and Science Program award, worth over $38,000. In addition, Furlong was the top student in aerospace engineering and second in the first-year engineering class of 402 students that year.

Furlong transferred into environmental engineering for her second year and followed up her winning record by taking home the Ontario Hydro Engineering Scholarship valued at $2,400. Furlong won not only for her outstanding grades but also for her involvement in extracurricular activities, demonstrated leadership abilities, and strong communication skills.

Headstart Competition

Carleton students' recent success in an object-oriented programming competition was second only to MIT.

When Footprint, a subsidiary of IBM, offered Carleton engineering and computer science students a free two-day course on the Java programming language, 150 students sacrificed a weekend to improve their computer literacy.

Footprint held a follow-up competition to see how students would apply the programming knowledge they had acquired. The competition was open to students from the seven other participating Canadian universities and MIT. Entrants were required to write an application using Java, which was judged by developers from Footprint and IBM.

"Our students' fine performance reflects their familiarity with an object-oriented approach to programming — the hallmark of the School of Computer Science," says Irwin Reichstein, Associate Professor and co-op administrator in the School.

Doug Staley

Carleton Students Take Their Place in Space

Carleton's aerospace engineering students will soon boldly go where no other engineering students have gone before. Under the direction of Professor Doug Staley, fourth-year and graduate aerospace engineering students have designed and built components of a small satellite named SILA, which is scheduled to be launched into space by NASA in the year 2002 to measure ozone concentrations in the upper atmosphere.

The SILA project won the Award for Technical Excellence, sponsored by the Council of Ontario Deans of Engineering, at the 1997 Ontario Engineering Competition.

An Education You Can Take to the Bank

Students at Carleton have a well-deserved reputation for being enterprising. With the support and encouragement of faculty, students have spawned a number of successful businesses including:

- Ingenia, that began with a handful of Carleton engineering students several years ago, is now a thriving $2.7 million organization ranked by *The Financial Post* as one of the top 25 'up and coming' software companies in Canada;

- WebCon, a World Wide Web consulting group with contracts with Industry Canada and others;

- Matrix Developments, a student-run computer engineering business, has designed a virtual tour of Carleton's campus through interactive Web pages allowing students with disabilities to find quick and efficient ways of accessing facilities on campus;

- Virtual Ventures, a summer camp on the Internet, was initiated by enterprising students who created their own summer jobs. In its third year of operation, there were 900 campers on the Carleton campus, with plans to expand to other universities and colleges;

- Visual Synthesis, a Web design business run by students in the University's School of Industrial Design;

- Compudyme, a software development company run by students in the School of Computer Science, which provides educational and scientific software solutions.

Opening Doors for Other Students

Christine Gervais, a Ph.D. student in the sociology department, first visited the Dominican Republic on a high school trip eight years ago, and was moved by the poverty she found there. She turned her concern into action by establishing the Access to Education Dominican Republic Fund to provide scholarships for disadvantaged students, for whom cost is a barrier even in completing high school.

Long's Accomplishments Go the Distance

Completing your Ph.D. is a tremendous accomplishment, but being recognized as one of the four best Ph.D. candidates in the country is even better.

Dr. John Long, who graduated with a Ph.D. in Electrical Engineering from Carleton, is one of only four Canadian recipients of the 1996 NSERC Doctoral Awards. Long won the award for his doctoral work at Carleton in the area of integrated circuits for wireless communication. Long's research is expected to have a major impact on cellular phone technology by increasing the life of the telephone's battery while reducing the cost of production.

Long's accomplishments have received a great deal of recognition — both externally and internally. He has won major awards given by the Canadian Semiconductor Design Association and the Canadian Microelectronics Corporation, as well as Carleton's highest graduate medals at both the master's and Ph.D. levels.

Long is now an electrical engineering professor at the University of Toronto, but has maintained connections with Carleton researchers through the MicroNet Centres of Excellence project.

Louis Desmarais

Montreal-based venture capitalist Louis Desmarais has cherished memories of his undergraduate days at Carleton. He looks back on his university years as a time of growth and discovery, a time when his entrepreneurial spirit got its initial boost.

Since he was awarded a commerce degree from the University in 1977, he has studied accountancy and law, and has worked in banking, law, as a parliamentary assistant, and for the Supreme Court of Canada. But venture capital has become his specialty and risk-taking just part of the adventure.

As Chair of Millennium Gold Corporation, one of his venture capital investments, his focus is now on geological exploration. Recently, Desmarais made a major contribution to bursary funds at Carleton destined to assist promising geologists in their pursuit of academic and practical knowledge.

"When it comes to supporting one of the institutions from which I hold degrees, Carleton is undoubtedly my first choice," he says. "I invested my money in geology bursaries because that's where my interests lie now, but also because I have heard from many professionals in the field that Carleton geology grads are among the finest in Canada."

John Manley

You might think that as Canada's federal Minister of Industry, John Manley's time is fully occupied with matters of national and international concern. But this 1971 political science graduate of Carleton has strong opinions on how his alma mater can effect change from its advantageous position in the national capital.

He has made himself available to speak to students, to rally forces in Carleton's Capital Campaign, and to work with senior administrators in establishing links between Carleton and federal policy-makers. "Carleton is in a unique position in Canada to provide valuable experience for students in the area of policy development and high technology education," he says. Manley notes that in the national capital the private sector exists with the public sector to their mutual benefit.

Manley is the first to recognize the value of post-secondary education and praises Carleton for the start it gave him. "Carleton provided me with the intellectual and social skills that became the foundations for my careers in law and politics," he acknowledges. "I gained more than a degree from Carleton. I learned that one's education is a life-long process."

Angus Reid

Canada's best known pollster has never been shy about polling his own feelings and making them known. When it comes to Carleton, Angus Reid, Ph.D./74, President of the Angus Reid Group Inc., has high praise indeed for the education he received at the University.

He arrived at Carleton at a time when sociology was in its ascendency and when some of the best brains in Canada in that discipline were teaching at Carleton. He has since made major commitments to his alma mater in both time and money by initiating and generously supporting a bursary named to honour his thesis supervisor, Bruce McFarlane. For the past several years he has also provided wise counsel to Carleton's President on a number of major issues of concern to the University.

Angus Reid's own opinion of Carleton is based, in part, on a westerner's views of an institution far away from his own familiar turf but offering a specialty that no other university in the country could match. "I have fond memories of Carleton," he says, "as an institution that was large enough to have a full range of services and facilities but not so big as to be impersonal and bureaucratic. Carleton cares about its students."

Trina McQueen

Trina McQueen, President and General Manager of The Discovery Channel, Canada's top ranked new specialty channel, credits Carleton with providing the intellectual setting and the challenging teachers that helped shape her career in journalism. She says it was those years as a journalism student in the original First Avenue campus that sparked her continuing curiosity, honed her skills as a communicator, and lead her to a very satisfying career in journalism.

That career has included 25 years at the CBC in national and international radio and television reporting, current affairs and entertainment programming, and management responsibility for regional broadcasting operations for the corporation in both English and French.

At The Discovery Channel, she is able to direct her reporter's curiosity at anthology series and at documentaries on such themes as science and technology, nature and the environment, and adventure and world cultures.

Somehow McQueen finds time to offer advice to educators and senior university officials, sharing her knowledge about a discipline she learned to love at Carleton. "At Carleton," she says, "I was first introduced to the joys of curiosity and the pleasures of satisfying that curiosity."

Alumni Facts

Since that memorable day in 1946 when students in Carleton's first graduating class received their degrees at Glebe St. James United Church, some 67,000 graduates have earned diplomas, certificates, degrees, and postgraduate degrees at Carleton.

Alumni live in every province and territory in Canada and in 120 countries around the world. The greatest concentration of alumni live in Ottawa and other locations in Canada, with the next greatest numbers living in the United States, Hong Kong, and the United Kingdom.

Some facts:

- all alumni belong to the alumni association governed by a 32-member council;
- there are 12 branches of the association in cities across Canada;
- there are 14 affinity chapters based in Ottawa;
- alumni hold the majority of seats on the University's Board of Governors;
- alumni are represented on the University Senate and other key Carleton committees;
- alumni assist with student recruitment, provide advice, fund scholarships and bursaries, counsel students, and engage in social and networking activities;
- one in three alumni donate time or money to the University;
- Carleton graduates hold seats in Canada's Senate, House of Parliament, and the federal Cabinet;
- alumni have key positions in a diverse range of occupations - the curator of 19th-century art at the National Gallery in London, the chair and CEO of Hollinger Inc., and the star of the favourite cult film *The Blues Brothers* are all Carleton University graduates.

Teaching is Our Priority

At Carleton University, teaching is a priority. This is reflected in our innovative courses and programs, and in the support given to professors through our Teaching and Learning Resource Centre. It is also reflected in the fact that four Carleton professors have been named among the top 10 teachers in the country in the past three years. These professors, like others across campus, share the one thing in common that makes a great teacher — and that is enthusiasm for their field of study.

Don **Westwood** *and Aviva* **Freedman**

Carleton Profs Among the Top Ten in Canada

For the second time in three years, two Carleton University faculty have been recognized among the top 10 university teachers in Canada. Linguistics professor Aviva Freedman and architecture professor Don Westwood were awarded the 1997 3M Teaching Fellowship. In 1995, psychology professor Brian Little and music professor Alan Gillmor received the award.

The 3M Fellowship is awarded annually by the Society for Teaching and Learning in Higher Education to individuals who not only excel in the teaching of their courses, but also demonstrate an exceptionally high degree of leadership and commitment to the improvement of university teaching across disciplines.

Freedman and Westwood are already recognized on campus for their teaching expertise. Annual student evaluations consistently score them among the best. Both have received internal teaching awards and both have held the position of Teaching and Learning Scholar in Carleton's Teaching and Learning Resource Centre.

Freedman is Co-director of Carleton's Centre for Initiatives in Education and was a key player in the B.A. Renewal Committee that redesigned the University's undergraduate arts and social sciences programs.

Westwood is best known for his distance education courses aired on Carleton's instructional television channel. His course, "Structures in Architecture," is so successful that it has a large following of non-registered viewers. A module of his course, "Bridge Busting," is a component of local high school courses and is used by other universities. He has received many awards for his television teaching including one for his TV Ontario series "The Science of Architecture" which is distributed in 30 countries and is cited as a standard reference for design courses in civil engineering.

Carleton's Centre for Initiatives in Education

While the University raises its overall admissions standards, it has not abandoned its long-standing commitment to providing accessible education. Since September, 1996, Carleton's Centre for Initiatives in Education's Enriched Support Program (ESP) has offered a special support program to students who did not show their academic potential in high school and were denied admission to university.

Students who are accepted into the program follow a special combination of non-credit academic skills courses and regular credit courses and receive close supervision and extra support. Specially designed workshops help students develop the skills and strategies necessary for university-level critical thinking, reading, and writing. Students who succeed in the program are given credit for their first-year courses and admitted as regular students. This approach is definitely working as students in the program scored proportionately more As and Bs than did the general first-year population in the Bachelor of Arts programs. Due to the success of the pilot program, co-directors Dennis Forcese and Aviva Freedman will continue to offer students this opportunity.

Achievement That Wins Recognition

Each year, Carleton University acknowledges excellence in teaching and encourages innovation through its Teaching Achievement Award Program. The 1997 award recipients are:

Don Bailey,
Department of Systems and Computer Engineering;

Moyra McDill,
Department of Mechanical and Aerospace Engineering;

Natalie Luckyj,
School for Studies in Art and Culture;

Iain Lambert,
Department of Biology.

Carleton University's location in the heart of the high technology and government centre of Canada has given us the opportunity to develop creative and wide-ranging partnerships which support the University's research and academic activities. Closely aligned with the growth of the National Capital Region as a high tech powerhouse, a cultural centre, and the nucleus of the international community, Carleton engages in partnerships, which generate important industry-sponsored research projects and a variety of work experience programs in more than 20 disciplines.

Confederation **Bridge**

The World's Largest Research Lab: The Confederation Bridge

The thousands of motorists who drive over the Confederation Bridge, which links Prince Edward Island to the mainland, are probably not aware that they are travelling on one of the world's largest research labs. The Ottawa-Carleton Bridge Research Institute (OCBRI), housed in Carleton's Department of Civil and Environmental Engineering, is directing a multiyear monitoring project on the bridge's operation and performance.

The project, which is funded by NSERC, the Department of Public Works and Government Services Canada (PWGSC), the company that built the bridge, and other industrial partners, has a total budget of approximately $4 million and involves researchers at several other universities.

"The monitoring project is the only one of its kind in the world attached to a mega-project like the Confederation Bridge," explains Dr. Moe Cheung, Director of the OCBRI. "As a result, researchers in a variety of fields, from seismology to wind dynamics, will be able to use data collected on the bridge's performance to advance their understanding in these fields."

Dr. David Lau, Associate Professor of Civil and Environmental Engineering and a team leader at the OCBRI, has been overseeing the arduous but critical task of calibrating the thousands of sensors built into the bridge, and planning the management procedures for the transmission of data from the site back to Carleton.

The research team will then tackle the next stage — the management of a staggering amount of information. With sensors relaying data on the bridge's performance around the clock, simply coming up with the software to store and retrieve data is a monumental task.

The monitoring project is collecting data in five main areas: dynamic vibrations caused by traffic, wind, and earthquakes; short- and long-term deformation of steel and concrete; thermal stresses and ice stresses, a major factor in the Atlantic. The project will also look at load combination — the interaction of the different stresses.

"One of the long-term benefits of the monitoring project for Carleton is the enrichment of our research environment," adds Dr. Jag Humar, Chair of the Department of Civil and Environmental Engineering. "As well as having access to new and important data in a variety of fields, this project provides exceptional research and training opportunities for graduate students and postdoctoral fellows in our department."

Cheung agrees. "The design and construction of this structure was an exceptional undertaking, but in many ways, the most exciting work is just beginning."

Strengthening Scientific Ties to Enrich Lives

Carleton University plays a major role in research and development in health sciences in Canada and around the world. The Biomedical Alliance, formed in 1997, brings together over 85 faculty and researchers specialized in the area of biomedical sciences and engineering research, strengthening the ties between medical physics, neuroscience, biochemistry, and biomedical engineering.

At the Carleton Magnetic Resonance Facility (CMRF), physics professor Giles Santyr is using Magnetic Resonance Imaging (MRI) systems to conduct research into new methods of early breast cancer detection. The CMRF represents a partnership between Carleton, the National Research Council of Canada, and industrial partners.

Donald Russell

At Carleton's Life Sciences Research Centre, neuroscientists Bruce Pappas, Peter Fried, and David Roberts' research into Alzheimer's disease, smoking and pregnancy, and cocaine addiction is being recognized both in Canada and abroad, and has attracted over $2 million in funding over the last seven years.

For the last five years, mechanical and aerospace engineering professor Donald Russell has worked on a joint medical devices research project with the University of Ottawa Heart Institute. Russell and his colleagues' goal is to improve the design of artificial hearts and other mechanical implants and devices.

Carleton's Science Technology Centre (STC) provides mechanical and technical support to biomedical researchers. The STC has developed parts for artificial hearts as well as components used in neuroscience research and development, and is currently working with the Ottawa-Carleton Cancer Clinic on precision machinery used in the radiation treatment of brain tumors.

Balancing Work and Family

Carleton business professor Linda Duxbury has been attracting a lot of attention with her research into how Canadians balance work and family. Duxbury is the Director of the Centre for Research and Education on Women and Work (CREWW), a research unit in the School of Business and home of the Research Chair for Women and Work, which, last year, was endowed with a donation of $350,000 from the Royal Bank. She has appeared on CBC's *Morningside*, and has been interviewed extensively by the media on the issue of today's stressful workplace.

Linda Duxbury

The Centre is also well-known for offering the only Management Development Program for Women in Ontario, which recently received $125,000 in support from KPMG, an international management services giant.

"CREWW brings together one of North America's most productive teams of researchers and teachers in the field of women and work," says Duxbury. "Carleton has been recognized as a leader in research in this area, and the support we've received from the Royal Bank, Ontario Hydro, and KPMG shows we are working on topics important to employers as well as employees."

Academic Partnership with Cuba

The Canadian International Development Agency (CIDA) has invested close to $5 million in projects run by Carleton that will assist in the economic development of Cuba. Faculty in a wide range of disciplines, from business to linguistics, psychology and biology are involved in the program.

Specific projects include academic redesign, improved electronic communication between Cuban universities and the rest of the world, and the development of the sugar cane industry.

This enhanced academic partnership builds on the existing links between Carleton and Cuba that began in 1991 with an Agreement of Academic Co-operation with the University of Havana. In 1994, Carleton began offering a master's program in economics at the University of Havana to help Cuban faculty members learn western-style economics.

Thinking about Great Thinkers

"Many scholars become unwilling experts on deferred gratification," says history professor Brian McKillop, "so it's heartening to learn that what one has written has some enduring worth and is valued by others."

That is McKillop's modest way of referring to his 1996 Research Award from the Canadian Society for the Study of Higher Education (CSSHE) for scholarly excellence in the field of higher education.

CSSHE was particularly impressed with McKillop's book *Matters of Mind*, a history of the university in Ontario, which has also received an award from the Canadian Historical Association as the best book on the history of Ontario.

McKillop is moving on to a broader topic in his most recent work, tentatively entitled *Northern Prophets*. The book will examine the contribution of major Canadian thinkers to profound world issues over the past 75 years.

"It's an important study," McKillop says, "if only to suggest there have been Canadian thinkers in the 20th century who have been significant in an international sense."

Carleton Stacks the Chips in Favour of Region

When a team of international businesses conducted a site visit to investigate Ottawa's suitability for a new chip fabrication plant, Carleton's Integrated Circuit Design (ICD) laboratory and the Microelectronics Fabrication Laboratory (MFL) were part of the region's pitch.

The ICD laboratory conducts research and teaching on the design of high-speed integrated circuits and large silicon chips used in cordless transmission technology for cellular phones and wireless local area networks. The lab is an excellent training ground for Carleton engineering students who are hired by high tech companies, often before they graduate.

Electronics professor Garry Tarr runs the Microelectronics Fabrication Laboratory where he and his students manufacture and test incredibly small silicon integrated circuits and other devices used in process technology, device physics, and biomedical sciences. Their work complements that of electronics professor Martin Snelgrove in the ICD Lab, and provides a testing ground for completed circuit designs.

These facilities are the only labs of their kind in Canada open to undergraduate as well as graduate students.

A Worthy Achievement

Research Achievement Awards were established in 1989 to enhance the quality of research done at Carleton. Ten awards, each worth $10,000 as a research grant or teaching release, are given each year.

The 1997 award recipients are:

- Simon Dalby, *Geography*
- Peter Emberley, *College of the Humanities*
- Vijay Jog, *Business*
- Danny Krizanc, *Computer Science*
- Iain Lambert, *Biology*
- Roderick Phillips, *History*
- David Roberts, *Psychology*
- Donald Russell, *Mechanical and Aerospace Engineering*
- Priscilla Walton, *English*
- Shu-Hui Wu, *Psychology*

History You Can Hear

Canada's musical past is being re-introduced to the Canadian public in a 25-volume anthology, thanks to the Canadian Musical Heritage Society and a five-year $785,000 grant from the Social Sciences and Humanities Research Council of Canada (SSHRCC).

Professor Elaine Keillor of Carleton's School for Studies in Art and Culture and Vice-chair of the Society is fascinated by the rich variety of early Canadian music.

"As you find compositions that were produced by indigenous people and settlers from France and Britain, you can see how the threads are mixing together to produce a unique combination of sound that could only take place in Canada," says Keillor.

Elaine Keillor

Nineteen volumes of Canadian compositions going back to the 1700s, have been published since 1984. Another three are expected out in the next year.

A spin-off of the project has been CD recordings of early Canadian music. In December, 1996, *Le Souvenir: Canadian Songs for Parlour and Stage*, a collection of 24 art and popular songs as well as theatre music mostly by 19th-century composers, was released. During the summer of 1997, Toronto-based performance artist Mary Lou Fallis released the CD, *Prima Donna on a Moose*, featuring early Canadian songs, linked by historical commentary, based on the society's research.

New Discovery Has Staying Power

A chemical-curing reaction discovered by accident could solve a host of problems in the high tech and medical fields.

Carleton chemistry professor Zhi Yuan Wang was working on high temperature polymers when he discovered a solidifying process which he believes will be invaluable for the electronics and dental industries because of its clean reaction, non-volatility, and the absence of any toxic byproduct.

Supported by funding from the Ontario Centre for Materials Research (OCMR) and the Environmental Sciences and Technology Alliance of Canada (ESTAC), a government and industry consortium, Wang quickly recognized the potential of his find and has expanded on it over the past three or four years.

The curing process he is developing gives adhesives a longer shelf life for dental and medical materials and other applications.

Carleton Epicentre of Earthquake Research

It is no longer a secret that Canada's west coast will face a devastating earthquake in the future. Public opinion has changed tremendously in the last 15 years, says Carleton University Associate Professor of Earth Sciences Gail Atkinson.

"Public awareness and advances in modeling ground motions and damage from earthquakes have made it a favorable time to study these issues."

A $450,000 grant from the Natural Sciences and Engineering Research Council (NSERC) and support from the insurance industry are allowing Atkinson and colleagues at the University of British Columbia to estimate the damage that would result from an earthquake in the Vancouver/Victoria area and alert policy-makers and planners to the preventative steps for reducing these damages.

What Atkinson finds exciting about the three-year project which began in January, 1997, "is using the combination of seismology and engineering to solve a real-world problem which has widespread implications for the economy of the whole country."

Linking Learning with Industry

The University has forged strong links with industrial firms, particularly in the area of high technology. The Ottawa-Carleton Research Institute (OCRI) acts as an umbrella organization for post-secondary institutions in the Ottawa Valley and co-ordinates several of the university/industry activities in computing and engineering technology.

Industry-Sponsored Research Chairs

- Management of Technological Change
- Computer-aided Engineering
- High Speed Integrated Circuitry
- High Pressure Die Casting
- Performance Engineering of Real-Time Software
- Applied Parallel Computing

Dr. Jörg-Rüdiger Sack

Parallel Computing Unparalleled

In 1996, Carleton was awarded Ontario's first Industrial Research Chair in a computer science department. The inaugural holder of the Almerco-NSERC Industrial Research Chair in Applied Parallel Computing is computer science professor Dr. Jörg-Rüdiger Sack.

Sack and his research group, PARADIGM, conduct research and development in the area of parallel computing used in computation-intense areas such as medical computing and earthquake and forest fire prediction.

As Chair of the program, Sack assists Canadian industry in the use of parallel computing and prepares them for the technological challenges and opportunities that come with advanced computer science.

The combined total value of the research and development agreement and the NSERC award is approximately $10 million.

Exploring the Universe

Research projects at the Centre for Research in Particle Physics (CRPP), explore the universe, while making the world a little smaller through academic co-operation and partnership. Originally part of the National Research Council of Canada, CRPP is part of an international team of 28 institutions in nine countries working on the OPEL experiment at the CERN particle accelerator in Geneva, Switzerland. CRPP, in conjunction with the Science Technology Centre, built two of the detectors used in the experiment.

In 1990, CRPP began work on the Sudbury Neutrino Observatory (SNO) project. Based two kilometres underground in the Creighton Mine near Sudbury, Ontario, physicists from Canada and the United States conduct experiments involving the collection of neutrinos emitted by the sun in 1,000 tonnes of heavy water. Carleton and the CRPP were involved in the construction of a light and heavy water purification plant for the experiment.

Joint Chair for Women in Science and Engineering

Renowned biomedical engineer Dr. Monique Frize holds the Joint Chair for Women in Engineering and Science for the Ontario Region. The Chair is supported by Carleton University and the University of Ottawa, and is housed at Carleton. Sponsored by Northern Telecom (Nortel) and the National Science and Engineering Research Council of Canada (NSERC), the Chair is part of a national network of five regional chairs that promote the participation of women in science and engineering.

As Chair, Frize works to encourage female students at all levels of education to consider careers in science or engineering, and provides support to female faculty and students in those fields. She has organized a conference of the five regional chairs to establish a system for information sharing that will act as a permanent resource for women in engineering and science.

Centres of Excellence Participation

- Communications and Information Technology Ontario
- Materials and Manufacturing Ontario
- Centre for Research in Earth and Space Technology
- Microelectronic Devices, Circuits and Systems for Ultra Large-scale Integration
- Canadian Institute for Telecommunications Research
- Canadian Institute for Robotics and Intelligent Systems
- TeleLearning Research Network
- Sustainable Forest Management Network

Message from the Chair of the Capital Campaign

Carleton University has played a critically important role in my life, beginning with my days as a graduate student in engineering during the 1960s. That is why I am so pleased to be the Chair of the University's new Capital Campaign. The five-year campaign, with a fund-raising goal of $50 million, will play a critical part in supporting some of Carleton's vital "new directions," — especially in the areas of technology, public affairs, and student support.

As an alumnus, a member of the local high tech business community and a determined competitor in the international marketplace, I value the vital role Carleton has to play in providing the excellent, highly skilled graduates that are one of this country's most important assets. Throughout my business career, and especially now at Corel Corporation, I have looked to Carleton University when hiring Canada's leading graduates in a variety of disciplines. The goal of the Capital Campaign is to raise the support needed to expand and develop this commitment to excellence. By building on our strengths and expanding our partnerships, research activities, and premier programs, Carleton will contribute even more to a prosperous Canadian future.

On behalf of my colleagues on the Capital Campaign Executive, I would like to thank the many individuals, corporations, and foundations that have supported our efforts. The quality of Carleton's future endeavours will depend largely on the support we enjoy from our alumni and the broader community.

Michael C.J. Cowpland
President and CEO, Corel Corporation

Eric Sprott

Carleton commerce graduate and securities investor Eric Sprott joined the front ranks of Canadian philanthropists when he announced a $S million pledge to support student aid at Carleton. It is the largest gift ever received by the University.

"I think it's important to help students stay in university, especially students who have completed first year and are wondering how to continue. I am in a position now to do something about that and to spend my money where it will do the most good."

Leadership Gifts

Carleton University gratefully acknowledges the generosity of the following individuals, corporations, and foundations who have made leadership gifts to the Capital Campaign and whose exemplary support is helping to make Carleton one of the foremost teaching and research centres in Canada.

(gifts received from January, 1996 to July, 1997)

$5,000,000 and over
Eric S. Sprott

$1,000,000 to $4,999,999
Corel Corporation
The Estate of C. Douglas Blyth
The Estate of Kathleen C. Carty

$500,000 to $999,999
Anonymous Donor
The Maurice Price Foundation

$100,000 to $499,999
Daniel Edward Aykroyd
Bank of Montreal
Bank of Nova Scotia
Bell Canada
Canadian Imperial Bank of Commerce
The Harold Crabtree Foundation
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Millennium Gold Corporation
Ontario Hydro
Bernard Perrier
Royal Bank of Canada
Toronto Dominion Bank
TransCanada Pipelines
The W. Garfield Weston Foundation
The Estate of Ann E. Whitmore

$25,000 to $99,999
Anonymous Friend
The Estates of Jack and Frances Barwick
The Estate of Alexander Dayton
The CRB Foundation
Canadian Pacific Charitable Foundation
Carleton University Academic Staff Association
Cognos Inc.
The Estate of David and Rachel Epstein
Claire Gervais
The Great West Life Assurance Company
Gryphon Investment Counsel Inc.
Barry J. Hobin
The Estate of Agnes Ireland
William and June Joe
Margaret Wade Labarge
The late Paul Larose
Richard L. Lewar
Manulife Financial
Marriott Corporation of Canada Ltd.
The Estate of Dr. F. C. Mohr
The Wesley and Mary Nicol Charitable Foundation
The Estate of Donald K. Norrgard
NOVA Corporation
Petro-Canada Inc.
Phillips, Hagar & North
Power Corporation of Canada
Pratt & Whitney Canada Inc.
Ranger Oil Ltd.
John E. Ruddy
Stentor Resource Centre Inc.
James E. Taggart
Gordon and Marnie Thom
Zeev and Sara Vered
David G. Vice

The Donor Recognition Wall was unveiled on September 27, 1996 by John Redfern (second from left), Chair of Lafarge Corporation and Chair of the Challenge Fund Campaign (1987-92). The wall recognizes accumulative gift-giving by corporations, foundations, and individuals since 1942 and is located in the lobby of Robertson Hall.

Pictured with Mr. Redfern are (left to right) Michael Bell, Director of the Carleton University Art Gallery, Lois Frankel, Associate Professor of Industrial Design, Richard Van Loon, President of Carleton University, and Bryce Ashdown, Industrial Design student involved with the project.

Henry Marshall Tory Society

Named in honour of our founder and first president, the Henry Marshall Tory Society has been established to honour those who make substantial gifts to Carleton University. Through special events and activities, we recognize the significance of their commitment and provide opportunities for them to become closely involved in the social and intellectual life of the University. Following are the current members of the Tory Society at Carleton University.

(gifts received from January, 1996 to July, 1997)

Chancellor's Circle

($10,000 - $24,999)

Carl H. Amberg
T. Chris Arnold
Regina Elizabeth Aulinskas
David K. Bernhardt
Maria A. Binney
Anne and Bob Bower
The Canada Life Assurance Company
Joseph Connolly
Jonathan Cunningham
Douglas Deruchie
J. Allan Donaldson
Gary S. Duck
Claude Edwards
Patricia Ann Finn
Michel Gaulin
General Electric Canada Inc.
The late Irwin Gillespie
Bruce H. Gordon
Arthur Kroeger
Ashok Kumar
Ruth Lifeso
Jocelyne Ghent Mallett
Paul Mandl
Gail and Ross Mutton
Anant Nagpur
Maureen O'Neil
Gordon Robertson
Thomas K. Rymes
David St. Charles
Slater Steel Inc.
John Usborne
Robert Wightman

President's Circle

($5,000-$9,999)

Michael Bell
Hugh Brownlee
K. Wayne Brownlee
Gerard H. Buss
Ross M. Cruikshank
Frances W. Cutler
Joseph F. Dlouhy
Robert Fairweather
Robert G. Fisher
Carol A. Fleck
Richard Lyon Fleming
Dennis Forcese
Dale R. Galbraith
Joseph Gosset
William C. Graham
William H. Horan
Martha Hynna
Elaine Keillor
Gail M. Larose
William R. G. Lawlor
Alan J. Leslie
Katherine Livingstone
Natalie Luckyj
Peter D. McBride
Frederick Michel
Marchellus Mindel
Ian Pringle
Paul Putinski
John D. Redfern
J. Spruce Riordon
Peter Rudin and Dianne Clark
Herbert Saravanamuttoo
Ronald Schofield
David L. Sterritt
Kenzie K. Thompson
David G. Thomson
William M. Tupper
Paul R. Weiss
Robert Wener
Donald R. Wiles
Douglas Wilson
Sydney F. Wise
Jean L. and Richard J. Van Loon

Governor's Circle

($2,500-$4,999)

Mary Donahue Adams
Margaret M. Arkell
Andrei V. Artemev
Alvin E. Bennett
Gail Blake
Leslie C. Boughner
Margaret E. Bower
Neil B. Bregman
C. Elizabeth Brown
Marc J. Brule
Annie and Alfred Chan
Chong Chan
Stanley Conley
Susan M. Conrad
Gail Cook-Bennett
James Cosh
George A. Cowley
Robert J. Crutchley
Edward G. Crysler
John B. Dale
Derek De Leon
Margaret Delicate
Carole E. Dence
Marilyn E. Dolenko
Martin and Susan Doyle
Stephen Dube
Donna Dubreuil
Bela I. Egyed
J. Stephen Ferris
Frantisek Fiala
Stephen J. Fretwell
Susan I. Gamble
Mark C. Giberson
Jane Gilbert
Alan M. Gillmor
G. Fred Goodwin
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J. Darrell Herauf
Karen and Richard Herring
Anne and G. Norman Hillmer
Ingersoll-Rand Canada Inc.
JWI Limited
Barbara and John Jackson
Boguslaw Jan Jarosz
Ted Katz
Ata M. Khan
David T. Lau
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G. Cheng Chi Lin
Donald MacDonald
Rosella M. MacNeil
Michael Makin
Maria McClintock
Kenneth McGillivray
Maureen G. McLean

Kenneth C. McMartin
J. Peter McNaughton
Paul W. Menzel
Maureen Molot
Hartland de M. Molson
Linda Muller
Catherine J. Murray
Warren C. E. Nethercote
Patrick E. O'Reilly
Patrick W. T. Oswald
Nicolas G. Papadopoulos
Zuzana M. Pick
Deirdre Piper
John B. Spicer
Mosur K. Sundaresan
Krishnan Suthanthiran
TAL Investment Counsel
James G. Taylor
Glen Toner
Sandra McSheffrey and
Timothy Wehrle
Brian J. White
Mark Woods

Dean's Circle

($1,500-$2,499)
George Anderson
John W. ApSimon
Donald A. Beecher
Malcolm Bibby
Roger W. Blockley
Alan Bolster
Jean-Guy Boutin
Richard Brown
D. Bruce Cameron
James Carleton
Robert Carnegie
Richard L. Carson
G. Lynn Collins
John M. Coo
Leslie A. Copley
Gordon S. Couse
Richard Csabi
Martien De Leeuw
Madeleine Dion Stout
Mary Jane Edwards
Bruce S. Elliott
E. Martin Foss
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Jacqueline Hurst and David Sawrey
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Peter Johansen
Paul C. Johns
Lynne Johnson
Marilyn A. Lindsay
G. Ross Love
Jacques Maurice
J. Moyra McDill
Lawrence T. R. McDonald
Michael McGlynn
Kevin D. McNeilly
E. Ann Newton
Timothy Pychyl
Sharon M. Richardson
Dorothy Rogers
Ronald Shigeishi
Ian Stacey
J. Kenneth Torrance
Duncan R. Watt
Ikuko Hirayoshi Webster
Darlene and Roger Wight

Legacy Circle

The Legacy Circle welcomes those individuals named below who have recently made substantial planned gifts to Carleton University and recognizes substantial gifts that have been received through estates in the past year.

Anonymous donors
The late Richard Abbott
Estate of Marion Carnochan
Carmen Desbarats
Estate of Donald Dewar
Jan Drent
Estate of Murray Goldblatt
Bhagwandas Shah
Wingate Snaith
Estate of Phyllis Wilson

Carleton Circle

The Carleton Circle recognizes those, named below, who have made substantial gifts-in-kind to Carleton University during the past year.

Anonymous donors
Isabel Bayly
Ruth Bell
Leo Bortolotti
Perry Bortolotti
Canadian Marconi Company
Duncan and Mary Anne de
Kergommeaux
DEW Engineering and
Development Ltd.
John Dolson
Electrohome Ltd.
Elizabeth Harfenist
Maxwell Henderson
Victoria Henry
Colin Hurman
Judith Hurman
International Datashare Corporation
Constance Jones
Jan Ladiges
Glen and Barbara McInnes
Christine Nelles
Gunter and Judith Nolte
Northern Telecom Ltd.
Pollara
Sony of Canada Ltd.
Priscilla Tyler and Maree Brooks
Malcolm and Donna Welch
Lela Wilson
Sydney Wise

Capital Campaign – Executive Committee

Michael J. Cowpland, *President and CEO, Corel Corporation, Ottawa*
Grant A. Bartlett, *Chairman and CEO, Archer Resources Ltd., Calgary*
K. Wayne Brownlee, *Partner, KPMG, Toronto*
John E. Caldwell, *President and CEO, CAE Inc., Toronto*
Arthur E. Collin, *Ottawa*
Gail Cook-Bennett, *Executive Vice-President, Bennecon Ltd., Toronto*
Jocelyn M. Cote-O'Hara, *Communications Consultant, Toronto*
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James P. Doohan, *Principal, Shelby Engineering, Edmonton*
Elaine M. Flaherty, *Halifax*
Robert E. Hindson, *President and CEO, Far West Mining Ltd., Vancouver*
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Angus E. Reid, *President, Angus Reid Group Inc., Vancouver*
S. Simon Reisman, *President, Trade and Investment Advisory Group, Ottawa*
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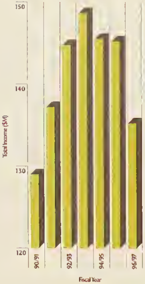
David C. Walker, *Winnipeg*

Ex Officio

Arthur Kroeger, *Chancellor*
Robert J. Laughton, *Chair, Board of Governors*
Richard Van Loon, *President*
Michael Makin, *President, Alumni Association*
Heidy Van Dyk, *President, Carleton University Students' Association*
Cecilia Van Egmond, *President, Graduate Students' Association*

Total Operating Income



Financial Challenges

The single most significant financial challenge facing the University is that of dealing with our reduced income.

Carleton enjoyed steady growth in both grant and tuition income in the late 1980s and early 1990s. In 1993, the provincial government imposed the social contract, reducing grant income and freezing compensation increases for a period of three years. Just as the University was moving out of this social contract period, the provincial government announced a 15 percent reduction in funding for Ontario universities. For Carleton, this meant a reduction in our base income of approximately $13.5 million beginning in the 1996-97 fiscal year.

At the same time as the government was cutting back its funding, Carleton experienced an unprecedented decrease in enrolment. From a high of 16,741 full-time students in 1993, the University's enrolment was down to 13,743 in 1996-97, an overall decrease of 18 percent.

The combined effect of these changes is that the University's operating revenue has been reduced from $149 million in 1993 to $135 million in 1996-97.

Strategies for Financial Viability

The University has taken a four-pronged approach to meeting the challenge of ensuring its financial viability: through reducing expenditures; increasing income; repositioning and strengthening academic programs; and increasing administrative efficiency.

Reducing Expenditures

The primary tools used thus far to reduce expenditures have been across-the-board cutbacks in unit operating budgets and a voluntary separation program. Since the 1995-96 fiscal year, a total of 71 faculty positions and 116 administrative positions have been eliminated through this program.

While the reduction in positions has resulted in a reduction in expenditures for compensation, it has cost the University money in the short term to offer reasonable and attractive severance packages. These one-time costs could not be taken out of operating revenues. The costs of severances, amounting to $17.4 million, have been added to the University's cumulative deficit.

Increasing Income

Carleton plans to increase its income by regaining appropriate enrolment levels and by developing income from outside activities directly related to its core activities. Additional resources and efforts in the area of student recruitment has moved the University to a position of stable first-year enrolment in 1997-98, with a goal to increase first-year enrolment from 3,900 students to 4,800 by the year 2000. At the same time, attention is being paid to the important area of retention to ensure that students who come to Carleton are successful.

Repositioning Academic Programs

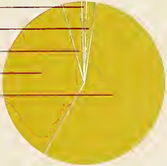
As mentioned earlier in the report, Carleton is undergoing a process of renewal which includes a structural reorganization to focus on areas of strength in public affairs and management and in high technology; revitalizing and refocusing the B.A. and B.Sc. programs; and by continuously evaluating programs on the basis of academic merit, program demand, and financial viability. Stronger academic programs will ensure a stronger, more viable institution.

Increasing Administrative Efficiency

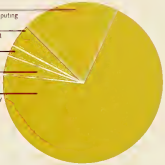
The administrative renewal process realigns administrative structures and practices to support the academic mission and to focus on services to students.

Operating Results 1996-97

	Total Operating Income $135.2 million
(000) $ 752	Interest
(000) $ 2,456	Pension
(000) $ 5,809	Miscellaneous
(000) $ 50 341	Tuition
(000) $ 75,806	Government Grant



	Expenditures: $143 8 million
(000) $ 27 630	Administration/Computing
(000) $ 6,654	Scholarships/Student Services
(000) $ 3,352	Miscellaneous
(000) $ 5,414	Restructuring
(000) $100,703	Academic and Library
(000) $ 8,589	Deficit on Year
(000) $ 21,532	Cumulative Deficit

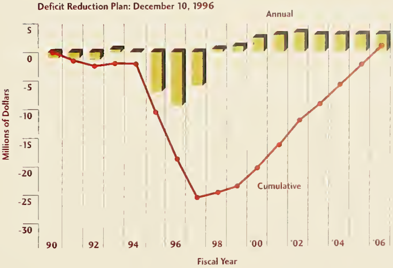


The Long Term

In December, 1996, the Carleton University Board of Governors established a budget framework for long-term financial planning and set the following financial objectives: that the University reach an annual operating break-even budget in the 1998-99 fiscal year; and that the cumulative deficit be eliminated no later than the 2006-07 fiscal year.

The long-term plan for deficit reduction looks like this:

Deficit Reduction Plan: December 10, 1996



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